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EXAMINER

RADTKE, MARK A

ART UNIT PAPER NUMBER

2165

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,486

Applicant(s)

ANDERSON, ERIC

Examiner

Mark A. X Radtke

Art Unit

2165

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. In response to communications filed on 14 August 2006, no amendments have been made, per Applicant's request. Therefore, claims 1-24 are presently pending in the application, of which, claim(s) 1, 12 and 19-25 is/are presented in independent form.
2. In light of Applicant's arguments, the rejections under 35 U.S.C. 112, first paragraph have been withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-15 and 17-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Verma et al. (US Patent 6,856,993).

As to claim 1, Verma et al. teaches a method of creating a filesystem with transaction based functionality (see Abstract), comprising:

receiving an indicator to initiate a transaction for files stored in one or more portions of the filesystem (see column 10, lines 8-10, "mark the thread/process as transacted" and column 10, lines 20-24, "copyFile");

duplicating the one or more portions of the filesystem within a pseudo-filesystem (see column 10, lines 8-24, "copyFile"); and

creating a control text file that receives text-based commands to operate on the pseudo-filesystem (See figure 4, element 86 and column 33, lines 46-56. In the computer programming art, "log" files are implicitly "text-based". See also column 7, lines 24-27, "of a database component" and column 2, line 1. SQL also uses plain-text commands to save data, and is explicitly mentioned as a useful aspect of the invention).

As to claim 2, Verma et al. teaches wherein the duplicating is performed lazily (see column 2, lines 59-65 and column 23, "Deferred Redo Alternative").

As to claim 3, Verma et al. teaches further comprising:

processing the text-based commands written to the control file (see column 2, lines 57-59 and column 3, lines 3-6);

operating on the one or more portions of the pseudo-filesystem within a transaction according to the text-based commands (see column 3, lines 3-6).

As to claim 4, Verma et al. teaches further comprising:
completing the transaction upon receipt of a text-based command associated with terminating the transaction (see column 8, lines 26-28).

As to claim 5, Verma et al. teaches wherein the text-based commands include functional equivalent commands associated with terminating the transaction (see column 7, lines 23-26, "aborted") and selected from a set of commands for performing one of the following functions: delete directory (see column 17, lines 3-7), delete filesystem (see column 17, lines 3-7, "recursive delete"), and abort (see column 7, lines 23-26).

As to claim 6, Verma et al. teaches further comprising:
updating the filesystem with the updates performed on the pseudo-filesystem when the transaction has completed (see column 8, lines 26-28).

As to claim 7, Verma et al. teaches wherein the updates are performed upon receipt of an indication to commit the transaction (see column 8, lines 26-28).

As to claim 8, Verma et al. teaches further comprising:
creating a status text file that provides text-based status results from operations performed on the pseudo-filesystem (see column 2, lines 57-59, "actual data write details of the transaction").

As to claim 9, Verma et al. teaches wherein the indicator to initiate the transaction results from the creation of a directory within a pseudo-filesystem (see column 27, lines 64-67).

As to claim 10, Verma et al. teaches wherein the transaction ensures atomic updates to the filesystem in accordance with modifications made to the pseudo-filesystem and related files during the transaction (see column 6, lines 24-26).

As to claims 11 and 18, Verma et al. teaches wherein a user assists in reconciliation of conflicts between updates in the pseudo-filesystems (See column 29, lines 37-45. Depending on when the non-transacted user releases the resource, a file handle in conflict will not be deleted, thus resolving a resource conflict).

As to claim 12, Verma et al. teaches a method of interfacing with a filesystem (see Abstract) comprising:

receiving a text-based command in a command file for operating on a pseudo-filesystem corresponding to the filesystem within a transaction (see column 10, lines 8-10 and column 10, lines 20-24);

determining whether one or more data dependencies would prevent the text-based command from being performed on the pseudo-filesystem (see column 29, lines 37-45); and

performing the text-based command and potentially updating the pseudo-filesystem, the filesystem and one or more corresponding files associated with the pseudo-filesystem and filesystem respectively (see column 29, lines 37-45).

As to claim 13, Verma et al. teaches further comprising:

updating a status file associated with the pseudo-filesystem with text-based intermediate status results for performing the text-based command and updates performed in the system (see column 2, lines 57-59, "actual data write details of the transaction").

As to claim 14, Verma et al. teaches further comprising:

updating a status file associated with the pseudo-filesystem with text-based results indicating the final status associated with the command (see column 2, lines 57-59, "actual data write details of the transaction").

As to claim 15, Verma et al. teaches wherein receiving a text-based command includes functional equivalent commands selected from a set including: change root directory (The "mount" command is all well-known command in NTFS. Mount points can be partitions or folders within an existing partition. See <http://support.microsoft.com/?kbid=205524>), select concurrency control type (See column 6, lines 56-59. Any kind of concurrency control system can be used via interfaces), select isolation level (See column 6, lines 48-51. Processes, file handles or

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files must be selected before they are treated as transactional operations. Disabling or enabling transactions is a selection of isolation level.), commit transaction (see column 8, lines 26-28), and abort transaction (see column 7, lines 23-26).

As to claim 17, Verma et al. teaches wherein determining the one or more data dependencies includes using lock-based concurrency control (LBCC) to control pending read and write operations to the pseudo-filesystem, the filesystem and one or more corresponding files associated with the pseudo-filesystem and filesystem respectively (see column 11, line 49 – column 12, line 18).

As to claim 19, Verma et al. teaches a computer program product for creating a filesystem with transaction based functionality, tangibly stored on a computer-readable medium, comprising instructions operable to cause a programmable processor (see Abstract) to:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 1 above.

As to claim 20, Verma et al. teaches a computer program product for interfacing with a filesystem, tangibly stored on a computer-readable medium, comprising instructions operable to cause a programmable processor (see Abstract) to:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 12 above.

As to claim 21, Verma et al. teaches an apparatus that creates a filesystem with transaction based functionality (see Abstract) comprising:

a processor (see figure 1, element 21);

a memory (see figure 1, element 25) having instructions capable of being executed on the processor that receive an indicator to initiate a transaction for files stored in one or more portions of the filesystem (see column 10, lines 8-10 and column 10, lines 20-24), duplicate the one or more portions of the filesystem within a pseudo-filesystem (see column 10, lines 8-24, "copyFile"), and create a control file that receives text-based commands to operate on the pseudo-filesystem (See figure 4, element 86 and column 33, lines 46-56. In the computer programming art, "log" files are implicitly "text-based").

As to claim 22, Verma et al. teaches an apparatus that interfaces with a filesystem (see Abstract), comprising:

a processor (see figure 1, element 21);

a memory (see figure 1, element 25) having instructions capable of being executed on the processor that receive a text-based command in a command file for operating on a pseudo-filesystem corresponding to the filesystem within a transaction (see column 10, lines 8-10 and column 10, lines 20-24), determine whether one or more data dependencies would prevent the text-based command from being performed on the pseudo-filesystem (see column 7, lines 23-26, "aborted"), and perform the text-

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based command and potentially updating the pseudo-filesystem, the filesystem and one or more corresponding files associated with the pseudo-filesystem and filesystem respectively (see column 8, lines 26-28).

As to claim 23, Verma et al. teaches an apparatus for creating a filesystem with transaction based functionality (see Abstract), comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 1 above.

As to claim 24, Verma et al. teaches an apparatus for interfacing with a filesystem (see Abstract), comprising:

For the remaining steps of this claim applicant(s) is/are directed to the remarks and discussions made in claim 12 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. as applied to claim 12 above, and further in view of Kung et al. ("On optimistic

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methods for concurrency control", ACM Transactions on Database Systems (TODS), vol. 6, issue 2, pages 213-226. Published June 1981).

As to claim 16, Verma et al. does not teach wherein determining the one or more data dependencies includes using optimistic concurrency control (OCC) to control pending read and write operations to the pseudo-filesystem, the filesystem and one or more corresponding files associated with the pseudo-filesystem and filesystem respectively.

Kung et al. teaches wherein determining the one or more data dependencies includes using optimistic concurrency control (OCC) to control pending read and write operations to the pseudo-filesystem, the filesystem and one or more corresponding files associated with the pseudo-filesystem and filesystem respectively (see Abstract).

Therefore, it would have been obvious to one of ordinary skill in the relevant art at the time the invention was made to have modified Verma et al. by the teaching of Kung et al. for the benefit of providing an external transaction service (See Verma et al., column 6, lines 59-64, where one type of transaction service, MS-DTC, is suggested. Furthermore, Examiner notes that there are 171 citations listed on the ACM Portal, indicating that the method is well-known in the art).

Response to Arguments

7. Applicant's arguments filed on 14 August 2006 with respect to the rejected claims in view of the cited references have been fully considered but are not deemed persuasive.

In response to Applicant's arguments that Verma et al. does not teach "duplicating the one or more portions of the filesystem within a pseudo-filesystem", the arguments have been fully considered but are not deemed persuasive. Applicant agrees that copyFile "deals with a conventional copying of a file within the filesystem for an application or user" (page 10, paragraph 2). That statement alone appears to be an admission that Verma et al. teaches at least "duplicating the one or more portions of the filesystem". Applicant then argues that "this is for applications and not internal management/operation of the transactional filesystems". Applicant's argument is unclear on this point. Examiner's best understanding of the argument is that Applicant claims the transactional system is not itself transactional. Verma et al. teaches how the transactional system enforces its own integrity in columns 17-18 in the section titled "The Logging Service". Applicant goes on to argue that Verma et al. does not teach "creating a pseudo-filesystem". The system of Verma et al. is a pseudo-filesystem because it wraps around another filesystem. This is equivalent to Applicant's definition of a pseudo-filesystem ("Another aspect of the invention is used for interfacing with a filesystem." See page 4, paragraph [0009] of the instant specification).

In response to Applicant's arguments that Verma et al. does not teach "creating a control text file that receives text-based commands to operate on the pseudo-filesystem", the arguments have been fully considered but are not deemed persuasive. Specifically, Applicant asserts that the log files of Verma et al. "do not receive commands for controlling the transactional file system but instead receive the results of certain operations and/or errors". This is untrue. In the section titled "The Logging Service" (beginning in column 17), Verma et al. teaches one way in which the TxF log is used to control the transactional file system. Verma et al. teaches using TxF logging to restore the NTFS log should a crash occur before the NTFS log can be written. See column 17, lines 30-38; column 17, lines 44-53 and column 18, lines 57-60.

In response to Applicant's arguments that Kung et al. does not teach "using optimistic concurrency control (OCC) to control pending read and write operations to the pseudo-filesystem", the arguments have been fully considered but are not deemed persuasive. The transactional file system of Verma et al. is a database. All databases have the ability to be read and be written. The title of Kung et al. is "On Optimistic Methods of Concurrency Control" and the abstract recites "database systems" in line 1, so Kung et al. teaches OCC.

Additional References

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following non-patent literature is cited to further show the state of art with respect to transactional systems in general:

"Transaction Isolation Levels" by Ian Gilfillan.

"Chroot" by Wikipedia.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

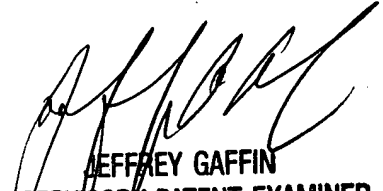
10. Any inquiry concerning this communication or earlier communications should be directed to the examiner, Mark A. Radtke. The examiner's telephone number is (571) 272-7163, and the examiner can normally be reached between 9 AM and 5 PM, Monday through Friday.

If attempts to contact the examiner are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached at (571) 272-4146.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Customer Service at (800) 786-9199.

maxr

27 October 2006



JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100